

Fig. 1

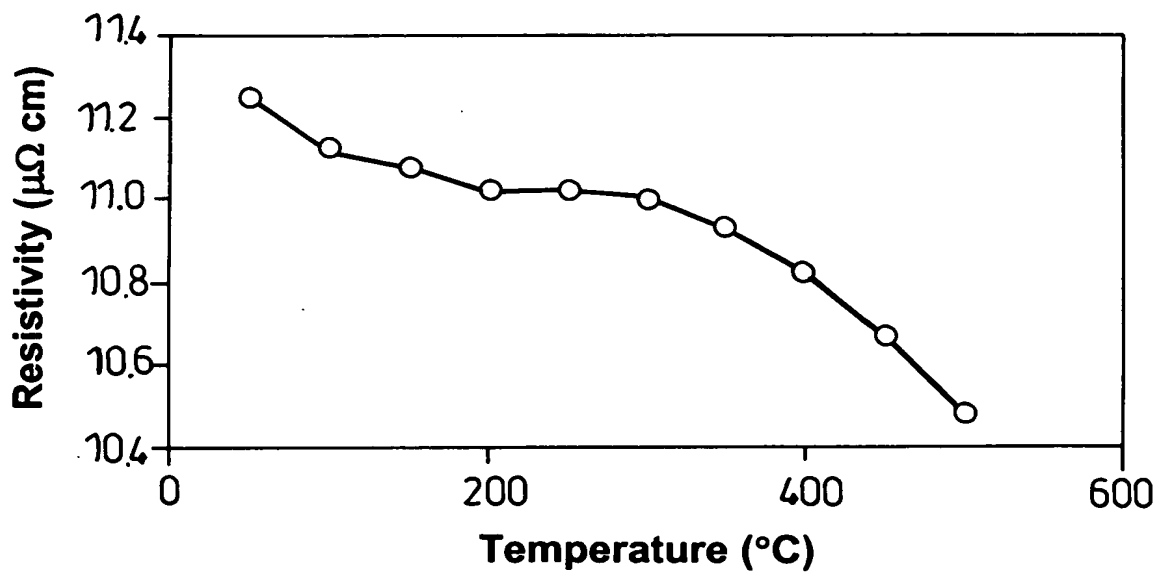


Fig. 2

	200°C platen	400°C platen
Deposition rate	28 nm/kW min	29 nm/kW min
Resistivity (micro ohm cm ⁻¹)	181	181
Film Stress (dynes cm ⁻²)	1.2 E10	2.5 E10

Fig. 3

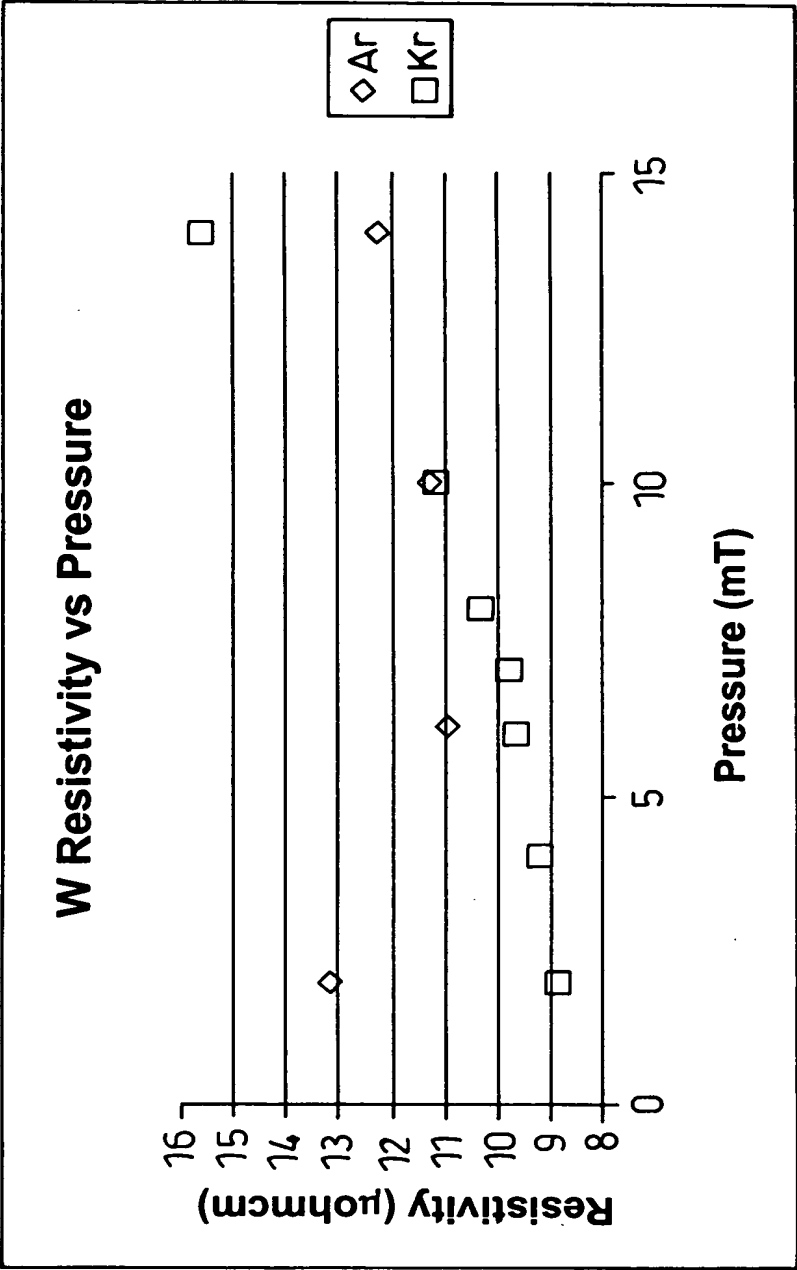


Fig. 4

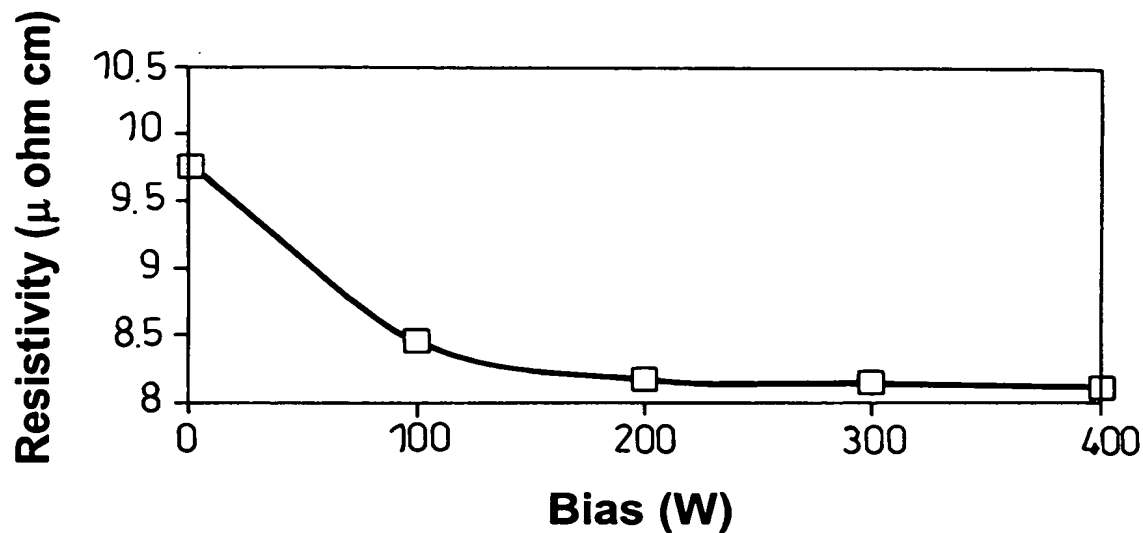


Fig. 5

330 mm diameter target

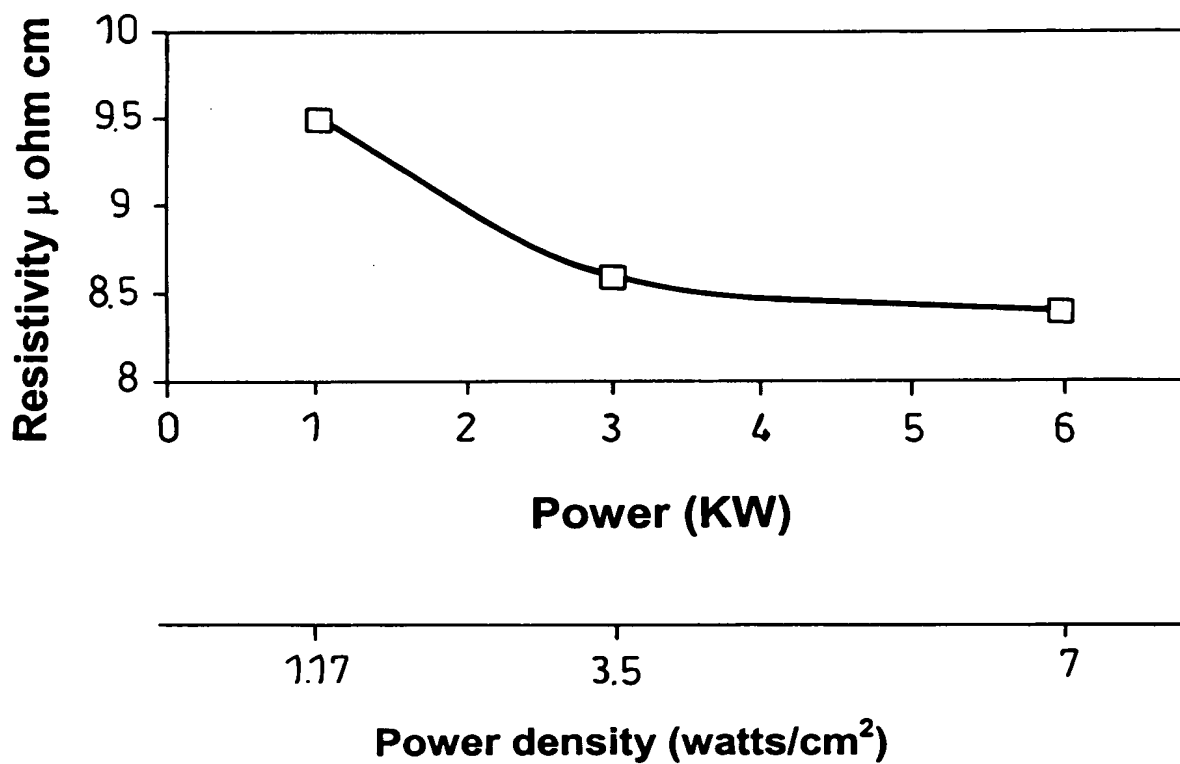


Fig. 6

Tungsten nitride	Ar sputter gas	Kr sputter gas
Deposition rate	28nm/kW min	45nm/kW min
Resistivity (micro ohm cm ⁻¹)	181	171
Film stress (dynes cm ⁻²)	1.2 E10C Compressive	1.9 E9T Tensile

Fig. 7

Gas	DC Voltage	DC Amps	Pressure mT
Ar	358	3.0	6.6
Kr	427	2.4	6.3

Fig. 8

Tungsten deposited

Gas	Pressure	Target Power	Platen Temp.	Film Stress	
35sccm Kr	2mT	6KW	400°C	4.3 E9	T
20sccm Kr mixed with 15sccm Ar	1.9mT	6KW	400°C	3.1 E9	T
200sccm Ar	6mT	6KW	400°C	3.5 E9	C

Fig. 9

T – Tensile

C – Compressive